

Anaesthetic management of an obese patient with obstructive sleep apnoea and atrial flutter for emergency obstructed umbilical hernia surgery

Sir,

Anaesthetic management of an obese patient with obstructive sleep apnoea (OSA) and atrial flutter (AFL) is a challenge due to difficult airway, risk of heart failure, thromboembolic events and death.^[1]

A 48-year-male, weighing 95kg with 72cm height, body mass index (BMI) 32 was scheduled for emergency laparotomy for obstructed umbilical hernia. He had severe OSA with 63.8 apnoea-hypopnoea index (AHI), was receiving continuous positive airway pressure (CPAP) with 10 – 12 cm H₂O pressure support (PS) and 8 cm H₂O positive end expiratory pressure (PEEP). On examination, patient was conscious, oriented with distended abdomen due to obstructed umbilical hernia measuring 8 × 6 × 6 cm³. He had irregularly irregular heart rate (HR) 80/minute, 174/86 mmHg non invasive blood pressure (NIBP), 25/minute respiratory rate with bilateral clear breath sounds and 95% room air saturation. Airway examination showed modified Mallampati class III, short neck and limited neck extension. His international normalised ratio (INR) was 1.9, other blood investigations were within normal limits. Electrocardiogram (ECG) showed right bundle branch block and AFL. Echocardiography showed 50% ejection fraction (EF), mild concentric left ventricular hypertrophy (LVH), Grade II diastolic dysfunction with no clots. Doppler ultrasonography (USG) showed no deep vein thrombosis (DVT). Oral warfarin 2 mg and metoprolol 25 mg were started 2 months back.

High risk consent was taken. Patient was shifted with supplemental oxygen on bariatric table with intubation ramp. Standard American Society of Anaesthesiologists (ASA) monitors, disposable defibrillator pads, bispectral index (BIS) sensors and electrodes for neuromuscular monitoring were attached. HR was 62/min with atrial flutter. Pre-induction ultrasound guided right internal jugular vein (IJV) and left radial artery cannulation was done under local anaesthesia.

After pre-oxygenation with 8cm H₂O CPAP anaesthesia was induced with fentanyl 150 mcg, etomidate 20 mg, succinylcholine 150 mg. Trachea was intubated with 8.0 mm cuffed endotracheal tube (ETT) under CMAC guidance. Anaesthesia was maintained with oxygen, air (FiO₂ 0.5) and desflurane with 0.8–1.0 MAC, with 40–60 bispectral index (BIS). Pressure controlled ventilation (PCV) with 20 – 22 PS and 7 cm H₂O positive end-expiratory pressure (PEEP) was initiated. USG guided bilateral rectus sheath block (10 ml each side) and transversus abdominis plane (TAP) block (15 ml each side) with 0.25% ropivacaine was administered. Fentanyl infusion was started at 50 mcg/hour. Intraoperatively vitals were stable with 60–70/min HR, 90–100 mmHg mean arterial pressure (MAP) and 98%–99% SpO₂. Duration of surgery was 3 hours with 200 ml blood loss. Neuromuscular block was reversed and patient's trachea was extubated once awake and generating adequate tidal volume with stable haemodynamics. Patient was shifted to high dependency unit (HDU) and CPAP with 10 PS and 7 PEEP was applied. Inj. enoxaparin 60 mg once daily was started and tablet warfarin was restarted on third postoperative day. Patient was discharged on 4th postoperative day.

Obesity has 1.5 increase in relative risk for AFL, heart failure, thromboembolic events and sudden cardiac death.^[2] These risks further increase due to perioperative surgical stress.

AFL treatment includes rate control [blockers/CCB as (class I)] and rhythm control [catheter ablation (class I)/amiodarone/sotalol/flecainide (class II)]. Our patient was on metoprolol for rate control and warfarin for anticoagulation. Time for further optimisation was minimal due to obstructed hernia; so we planned to use esmolol or labetalol for rate control and amiodarone for rhythm control. Transcutaneous pads were attached for cardioversion in case of emergency. Central venous pressure (CVP) and invasive arterial pressure (IAP) helped for haemodynamics, fluid status and acid base monitoring. We chose ramp position, pre-oxygenation with CPAP, modified rapid sequence induction and intubation with video laryngoscope due to reduced functional residual capacity, increased oxygen consumption and difficult airway. C-MAC reduces laryngoscopy force by 1/3rd, which helped in reduced intubation response. Dosages of drug were calculated using lean and adjusted body weight according to the Society for Obesity and Bariatric Anaesthesia (SOBA) guidelines.^[3] BIS and train of four

monitoring (TOF) help in monitoring adequate depth of anaesthesia, titration of inhalational agent, muscle relaxant and reversal agent.^[4] Desflurane was used for faster return of airway reflexes and rapid recovery.^[5] Adequate analgesia ensures optimal ventilation, pulmonary mechanics and reduces post-operative pulmonary complications. Large doses of opioids can lead to respiratory depression in early postoperative period. We planned bilateral TAP and rectus sheath block along with NSAIDs as central neuraxial block was contraindicated in our patient due to warfarin intake.^[6]

According to the Obesity Surgery Mortality Risk Score for prediction of mortality, our patient was monitored in ICU.^[7] CPAP, early mobilisation and deep vein thrombosis (DVT) prophylaxis with good analgesia was started for early recovery.^[7,8]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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